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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/591,002

08/29/2006

Atsuyuki Miyaji

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

DARJI, PRITESH D

ART UNIT

PAPER NUMBER

4181

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/591,002	Applicant(s) MIYAJI ET AL.	
	Examiner PRITESH DARJI	Art Unit 4181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08/29/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 13-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/02/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-12, and 17, are drawn to a process for production of a supported catalyst.

Group II, claim(s) 13-16, are drawn to a method of using a supported catalyst.

1. The inventions listed as Groups I & II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature which is referred to Annex B of Appendix A1 of the MPEP(Administrative Instructions under the PCT, "Unity of Invention"). The express "special technical features" is defined as meaning those technical features that define a contribution which each of the inventions, considered as a whole, makes over the prior art."(Rule 13.2). Unity exists only when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding claimed special technical features. In this case, the technical feature shared by each invention is the supported catalyst.

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The question of unity of invention has been reconsidered retroactively by the examiner in view of the search performed; a review of WO 2004/056474 which teaches the supported catalyst where '474 teaches a the manufacturing process made by Sakai et al., makes clear that the inventions of the groups I-II lack the same or corresponding special technical feature because the cited reference(s) appear to demonstrate that the claimed technical feature does not define a contribution which each of the inventions, considered as a whole, makes over the prior art. Accordingly, the prior art of the record supports restriction of the claimed subject matter in to the groups as mentioned immediately above.

3. During a telephone conversation with Sheldon on 09/18/2008 a provisional election was made without traverse to prosecute the invention of I, claims 1-12,17. Affirmation of this election must be made by applicant in replying to this Office action. Claims 13-17 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Status of Application

Claims 1-17 are subject to a restriction. Claims 1-12 and 17 are selected. Claims 13-17 are withdrawn.

Amendments of Claims

Amended claims were filed on 08/29/2006.

Specification

5. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are: Inaccurate parentheses are used in specification in every page. They are on left side of column. One is close to line 25 and another one is between line 10 and 15.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1,2,4 and 12 of Miyaji et al. (10/591002) are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshiaki et al (JP 2000-308830) in view of Jones et al (US 4495374).

With respect to claim 1, 2, 4 and 12, Yoshiaki et al. teaches impregnation of a carrier with an aqueous solution of water solution palladium compound then the impregnated carrier is brought down with a solution of barium salt. Afterwards, the palladium compound is reduced to palladium metal with a reducing agent to obtain the metal palladium-carrying carrier. (Yoshiaki et al., Abstract, line 7-11) The metal palladium-carrying carrier is a limitation of claim 4(see '002). In abstract, line 13-15, Yoshiaki et al.

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also teaches at least one compound selected from heteropolyacid and its salt is carried to prepare objective catalyst, which is limitation of claim 2 (see '002).

Yoshiaki et al. does not expressly teach impregnation of a carrier with at least one element selected from among gallium, indium, thallium, germanium, tin, lead, phosphorus, arsenic, antimony, bismuth, sulfur, selenium, tellurium and polonium, which is one of the limitation of claim 1 (see '002).

However, in a process of converting methane to higher hydrocarbon, using oxidative synthesizing agent, which has similar process of described catalyst in claim 1 of Jones et al., which teaches impregnation of a carrier with phosphorus and the alkaline earth metals. (Jones et al., page 3, column 4, line 52-55)

At the time of invention it would have been obvious to a person of ordinary skill in the art to perform the process of Yoshiaki et al. with impregnation of a carrier with phosphorus in view of the teaching of Jones et al. The suggestion or motivation for doing so would have been to promoted stability of synthesizing agent by using phosphorous into the composition. (Jones et al. Page 2, column 2, line 55-59). Since the process is obvious to perform, its product supported catalyst will be obvious too, which directs to claim 12.

8. Claims 3 and 17 of Miyaji et al. are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshiaki et al (JP 2000-308830) in view of Jones et al (US 4495374) as applied to claim 1 above, and further in view of Lazler et al.(US 2109844).

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Yoshiaki et al. and Jones et al. do not expressly teach a step of contacting carrier with (d) at least one compound selected from compounds which contain at least one element selected from group 11 and 12 elements of the Periodic Table and Chromium, which is a limitation for claims 3 and 17.

However, in a process catalytic process of hydrogenation of Easter, Lazler et al teaches using of chromium oxide in catalyst (Page5, column 1, line 65-75)

At the time of invention it would have been obvious to a person of ordinary skill in the art to perform the process of Yoshiaki et al. in view of Jones et al. using hydrogenating metal such as chromium oxide in view of the teaching of Lazler et al. The suggestion or motivation would be surface-extending property of chromium oxide, which will make reaction faster. (Lazler et al., Page5, column 1, line 70)

9. Claim 5 of Miyaji et al. is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshiaki et al (JP 2000-308830) in view of Jones et al (US 4495374) as applied to claim1 above, and further in view of Kaminsky et al (US 5316995).

Yoshiaki et al. and Jones et al. do not expressly teach group (b) compound containing at least one element selected from gallium, germanium, tin, lead, bismuth, selenium and tellurium.

However, in a process of hydrocarbon conversion catalyst in which, contact material of composition is a key objective. Kaminsky et al. teaches mixture of barium hydroxide (alkaline) with contact material germanium (pg 8, column 12, line 4-10)

At the time of invention it would have been obvious to a person of ordinary skill in the art to perform the process of Yoshiaki et al. and Jones et al. using germanium as contact material in view of the teaching of Kaminsky et al. The suggestion or motivation for doing so would have been that germanium does not generally volatilize in an amount or to an extent sufficient to materially detrimentally effect the performance characteristics of the material. Germanium also gives improved performance characteristics (e.g., selectivity) (pg8, column 11, line 52-60)

10. Claim 6, 7 and 8 of Miyaji et al. are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshiaki et al (JP 2000-308830) in view of Jones et al (US 4495374) as applied to claim 1 above, in view of Fujita et al. (US 20030135069).

Yoshiaki et al in view of Jones et al does not expressly teach polyatom of the heteropolyacid and/or its salt is tungsten and/or molybdenum, which is a limitation for claim 6. Yoshiaki et al in view of Jones et al does not expressly teach if heteropolyacid is at least one element phosphorus (claim 7 limitation). Furthermore, Yoshiaki et al in view of Jones et al does not expressly teach if heteropolyacid is phosphotungstic acid (limitation of claim 8).

However, in a process of using heteropolyacid Jones et al teaches peripheral element of a heteropolyacid could be tungsten (Fujita et al., page 2, line 48-51) and heteropolyacid salt used could be cesium salt of tungstophosphoric acid (Fujita et al., page 2, column 1, line 43). Limitation of claim 12 is cesium salt of tungstophosphoric

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acid. Tungsten is used as polyatom and phosphorus is used as heteroatom in tungstophosphoric acid. Tungstophosphoric acid is same as phosphotungstic acid.

At the time of invention it would have been obvious to a person of ordinary skill in the art to perform the process of Yoshiaki et al. using cesium salt of tungstophosphoric acid as heteropolyacid salt in view of the teaching of Denko et al. The suggestion or motivation for doing so would have been that the heteropolyacid structure is not limited as long as it is metal salt resulting from substituting a part of or all hydrogen atoms of the heteropolyacid (Fujita et al., page 2, column 2, line 28-31). In tungstophosphoric acid, the element tungsten makes it metal salt, which is motivation to use tungsten as polyatom for claim 6. In addition of tungsten has very high melting point. Using phosphotungstic acid, it will make heteroatom phosphorus, which is a motivation to use phosphorus as heteroatom for claim 7.

11. Claim 9 of Miyaji et al. is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshiaki et al (JP 2000-308830) in view of Jones et al (US 4495374) as applied to claim 1 above, and further in view of Lazler et al.(US 2109844).

Yoshiaki et al. and Jones et al. do not expressly teach that Group 11 or 12 element of the (d) group compound is an element selected from copper, silver, gold and zinc.

However, in a process catalytic process of hydrogenation of ester, Lazler et al. teaches to use zinc as non-ferrous hydrogenating metal in catalyst compositing group.

At the time of invention it would have been obvious to a person of ordinary skill in the art to perform the process of Yoshiaki et al in view of Jones et al using zinc in group (d) in

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view of the teaching of Lazler et al. The suggestion or motivation for doing so would have been to get preferable product by the substantial exclusion of hydrocarbon by using non-ferrous hydrogenating metal like zinc. (Page 5, column 1, line 65-70)

12. Claim 10 of Miyaji et al. is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshiaki et al (JP 2000-308830) in view of Jones et al (US 4495374) as applied to claim 1 above, and further in view of Sakai et al. (WO 2004/056474). Yoshiaki et al and Jones et al. do not expressly teach using of a catalyst in reaction of a lower olefin and oxygen to get a lower aliphatic carboxylic acid.

However, in a process of a compound using the catalyst, Sakai et al teaches production of a lower aliphatic carboxylic acid by a single-stage contact reaction of a lower olefin and oxygen. (Sakai et al, description, page 1, line 23-26)

At the time of invention it would have been obvious to a person of ordinary skill in the art to perform the process of Yoshiaki et al. in view of Jones et al using catalyst to make a lower aliphatic carboxylic acid in view of the teaching of Sakai et al. The suggestion or motivation for doing so would have been to use this catalyst instead to see how well product is made from olefin and oxygen.

13. Claim 11 of Miyaji et al. is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshiaki et al (JP 2000-308830) in view of Jones et al (US 4495374), further in view Obana et al. (US 6552220)

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Yoshiaki et al., Jones et al. and Obana et al. do not expressly teach using of a catalyst in reaction of ethylene and oxygen.

However, in a process of a compound using the catalyst Obana et al. teaches production of acetic acid through reaction of ethanol and oxygen.

At the time of invention it would have been obvious to a person of ordinary skill in the art to perform the process of Yoshiaki et al. in view of Jones et al using catalyst to make a acetic acid in view of the teaching of Obana et al. The suggestion or motivation for doing so would have been to use this catalyst instead to see how well product is made from ethanol and oxygen.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PRITESH DARJI whose telephone number is (571)270-5855. The examiner can normally be reached on Monday to Thursday 8:00AM EST to 6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on 571-272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PD

/Vickie Kim/

Supervisory Patent Examiner, Art Unit 4181

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